

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : RICOH CO LTD

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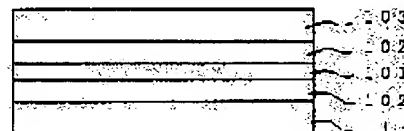
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(54) SEMICONDUCTOR LAMINATION STRUCTURE AND SEMICONDUCTOR LIGHT EMITTING ELEMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a semiconductor lamination structure and a semiconductor light emitting element by which such a light emitting element that can reduce taking-in of nitrogen on the surface of a guide layer or a clad layer adjoining to an active layer and is excellent in crystallinity and light emitting efficiency and of which charactersitic temperature is high can be obtained.

SOLUTION: In a nitorogen-based V group mixed crystal semiconductor containing N(nitrogen) as V group element, an $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{N}_z\text{P}_{1-z}$ layer 101($0 \leq x < 1$, $0 < y < 1$, $0 < z < 1$) and an $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{P}$ layer 102($0 \leq x < 1$, $0 < y < 1$) whose Al composition is smaller than $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{P}$ are arranged between $\text{Al}_x\text{Ga}_y\text{In}_{1-x-y}\text{P}$ layers 103 and 111($0 \leq x < 1$, $0 < y < 1$) whose Al composition is larger than the layer 101.



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PATENT ABSTRACTS OF JAPAN

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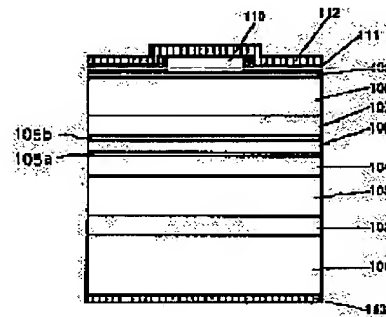
(72)Inventor : TAKAHASHI TAKASHI

(54) SEMICONDUCTOR LIGHT EMITTING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an AlGaInNP base semiconductor light emitting device by which light emitting efficiency can be improved.

SOLUTION: An n type GaAs buffer layer 102, an n type (Al_{0.7}Ga_{0.3})_{0.5}In_{0.5}P clad layer 103, a non doped (Al_{0.5}Ga_{0.5})_{0.5}In_{0.5}P lower light conductive wave layer 104, a non doped Ga_{0.5}In_{0.5}P intermediate layer 105a, a non doped Ga_{0.6}In_{0.4}N_{0.01}P_{0.99} light emitting layer 106, a non doped Ga_{0.5}In_{0.5}P intermediate layer 105b, a non doped (Al_{0.5}Ga_{0.5})_{0.5}In_{0.5}P upper light conducting wave layer 107, a p type (Al_{0.7}Ga_{0.3})_{0.5}In_{0.5}P clad layer 108, a p type Ga_{0.5}In_{0.5}P spike preventing layer 109, and a p type GaAs contact layer 110, are layered in sequence on an n type GaAs substrate 110.



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